Total No. of printed pages = 3 BCA 171404 41822 Roll No. of candidate BIMA CHEW LINE -Azaro, hadylovmpara, 2022 Guyrahab - 789017 B.C.A. 4th Semester End-Term Examination COMPUTER NETWORK (New Regulation) Time - Three hours Full Marks - 70 The figures in the margin indicate full marks for the questions. Answer question No. 1 and any four from the rest. Choose the Correct option: $(10 \times 1 = 10)$ 1. (i) Which topology requires a central controller or hub? (a) Mesh Star (b) Bus (c) Tree (d) (ii) MAC address is also called Logical Address (a) Physical Address (b) Destination Address Source Address (d) (c) (iii) The functionalities of the presentation layer include does not _ (a) Framing (b) Data compression Data encryption (d) Data description (e) (iv) The layer responsible for end to end delivery of the entire message is Transport Layer (a) Network layer (b) Data link layer Session layer (d) (c) Delimiting and synchronization of data exchange is provided by Network layer (a) (b) Transport Layer

Session layer

(d) Presentation Layer

(c)

	(vi)	In OSI network architecture, the dialogue control, and token management are responsibilities of						
		(a) D	ata link layer	(b)	Network layer			
		(c) T1	ansport layer	(d)	Session layer			
	(vii) Which of the following IP addresses can be used as loop-back addresses?							
		(a) 1.	1.1.1	(b)	127.1.1.1			
		(c) 12	27.0.0.1	(d)	255.255.255.255			
	(viii) How many pins does RJ-45 contain?							
		(a) T	vo	(b)	Four			
		(c) E	ght	(d)	Sixteen			
	(ix)		its are used for pad. What is the maxim					
		(a) 7		(b)	8 BINA CHOWORLY CONTROL LIERA	EV.		
		(c) 1	5	(d)	16 Azara, Handrowspaca, Guwahati -781017			
	(x)	HTTP	isprotocol					
		(a) P	resentation Layer	(b)	Application Layer			
		(e) T	ransport Layer	(d)	All of the above			
2.	(a)	What is difference between half duplex and full duplex?						
	(b)	Define protocol. Describe the key elements of protocols.						
	(c)	What do you mean by the Bit Interval and Bit rate in a digital signal?						
	(d)	Explain synchronous and asynchronous modes of transmission.						
	(e)	Describe framing and the reason for its need.						
	(f)	How analog to digital conversion is done?						
3.	(a)	What is single bit and burst error?						
	(b)	Calculate the checksum when sender wants to send 4 frames each of 8 bits 11001100, 10101010, 11110000 and 11000011.						
	(c)	Encode the data 1011101 in even parity, by using Hamming code. Find code word.						
	(d)	Suppose you want to transmit the data 100111001 and the gener polynomial is $X^6 + X^5 + 1$. What bit string is actually sent?						

4.	(a)	What is crosstalk? How is it minimized in case of twisted-pair of wire? (1+2=3)								
	(b)	How do guided media differ from unguided media? (2)								
	(c)	What is the function of router? How does a router differ from a switch? (2+3=5)								
	(d)	Define the terms broadcasting, multicasting and unicasting. (5)								
5,	(a)	What is the drawback of message switching? How is it overcome in packet switching? (2+3=5)								
	(b)	How the inefficiency of sliding window protocol is overcome in Go-Back-N ARQ protocol? (5)								
	(c)	Differentiate between virtual circuit and datagram. (3)								
	(d)	Find the class of following IPv4 addresses: (2)								
		(i) 192.168.1.210								
		(ii) 144,12,100,2								
6.	(a)	Why guard bands are used in FDM? EINACHOWER HER LIBRARY (GMT & CFE) (2)								
	(b)	What is the difference between Frequency Division Multiplexing and Wave Division Multiplexing (3)								
	(c)	What is the first address and last address of IP address 180.8.17.9 (3)								
	(d)	Compare and contrast between error control and flow control. (3)								
	(e)	How congestion control is performed by leaky bucket algorithm? (4)								
7.	Wri	te short notes on (any five): $(5 \times 3 = 15)$								
	(a)	Comparison OSI and TCP/IP reference model								
	(b)	Advantages of fiber optics								
	(c)	Piggybacking								
	(d)	Transmission impairment in computer network.								
	(e)	Control frame of HDLC								
	(f)	CSMA/CA								
	(g)	CIDR								